REMARKS

Claims 1-25 and 28 are currently pending in the present Application. In the Office Action dated October 7, 2008, the Examiner rejected claims 1-6, 8, 19 and 28 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,995,989 to Gedcke et al. (hereinafter "Gedcke") in view of U.S. Patent No. 6,502,045 to Biagotti (hereinafter "Biagotti"). Claims 7, 9-18 and 20-25 were objected to as being dependent upon a rejected base claim, but indicated to be allowable if rewritten in independent form. Applicant respectfully requests reconsideration of the rejected claims in view of the arguments and remarks set forth below.

Independent claim 1 is directed to a method for compressing mass spectrometry data and recites, inter alia, steps of carrying out a statistical analysis of noise within the read data to obtain at least one statistical moment or parameter related to the distribution of the noise, determining a threshold value from the statistical moment(s) or parameter(s), identifying peaks in the spectrum by comparing data points to the determined threshold, and storing information relating to the identified peaks together with the statistical moment(s) or parameter(s)" As described in the present specification, the at least one statistical moment or parameter relating to noise distribution that is derived from the mass spectrometry data and subsequently stored with the peak information may include the average or expectation value EN and the variance DN (see, e.g., p. 9, ¶2). Storage of the statistical moment(s) or parameter(s) characterizing the noise distribution along with the peak information serves several significant objectives, including but not limited to aiding algorithms that perform tasks such as substance identification from mass spectra (see p. 13).

In Applicant's Response A, filed on May 8, 2008, the Applicant argued that Gedcke failed to teach the foregoing claim limitation of storing peak information along with the at least one statistical moment/parameter characterizing the noise distribution. The Examiner has now set forth a new grounds of rejection based on the combination of Gedcke and Biagotti. According to the Examiner, Biagotti supplies the omitted teaching of determining a threshold value from the at least one obtained statistical moment or parameter, and storing information related to the statistical moment or parameter(s) with the peak information. Applicant

respectfully submits that the Examiner has misinterpreted the teachings of Biagotti, and that neither Gedcke nor Biagotti disclose the aforementioned claim limitations.

Biagotti is directed to a software-based virtual spectrum analyzer (VSA) for processing, manipulating and visualizing electrical, audio and video signals. The VSA includes a toolkit engine having a set of discrete routines for performing various operations on data representing the signals. The Examiner has cited text and figures relating to certain of these toolkits in support of his contention that Biagotti teaches the steps of determining a threshold value from one or more statistical moments or parameters, and storing the statistical moment(s) or parameter(s) with the peak information (¶4 of the Office Action). However, a close inspection of the cited figures and text reveals that the foregoing teachings are not present.

In particular, the Examiner has cited FIG. 23 and the corresponding text at col. 14, lines 20-25, which pertain to the measurement toolkit, and col. 12, lines 28-50, which pertains to the marker toolkit. The measurement toolkit provides a set of routines for calculating and displaying a series of standard measurements (average voltage, rms voltage, frequency, and so on) characterizing the signal (col. 8, lines 10-14). The cited text describes an operation whereby the signal data is processed to yield the standard measurements (col. 14, lines 16-18). These measurements are then stored for subsequent display (col. 14, lines 23-25). However, Biagotti does not teach that the standard measurements obtained by this toolkit include "carrying out at a statistical analysis of noise within the read data to obtain at least one statistical moment or parameter related to the distribution of the noise." Even if such a measurement were carried out by the Biagotti software, claim 1 requires the application of a threshold based on obtained statistical moment(s) or parameter(s) to identify in the peaks in the data, and storage of the statistical moment(s) or parameter(s) used for this purpose. Nowhere is this described in Biagotti. Biagotti does teach a filtering step at col. 14, lines 20-22, but states that "[t]he filtering may be performed by any known filtering technique or a proprietary filtering technique of the current assignee." Notably, Biagotti does not provide that any of the standard measurements calculated and stored by the measurement toolkit are utilized to derive a filtering threshold. While the filtering step of Biagotti could (but would not necessarily) involve carrying out at a statistical analysis of noise within the read data to obtain at least one statistical moment or

parameter related to the distribution of the noise to thereby derive a filtering threshold, Biagotti does not teach storage of the statistical moment(s) or parameter(s) with the peak information.

Similarly, the description of the marker toolkit similarly does not include a teaching of the claim 1 limitations of obtaining at least one statistical moment or parameter representing noise distribution, determining and applying a threshold value from the statistical moment(s) or parameter(s) to identify peak information, and storing the statistical moment(s) or parameter(s) with the peak information. As described at col. 12, lines 28-50, the marker toolkit calculates the location of local data peaks and assigns markers to the peaks. Biagotti fails to disclose in any detail how the locations of peaks are calculated. Conceivably, localization could be performed by a process in which a threshold value is determined and applied based on statistical analysis of the signal data, but again Biagotti does not teach or suggest storage, with the peak information, of the statistical moment(s) or parameter(s) from which the threshold is calculated.

The Examiner has also cited figures and text relating to the prefilter toolkit (col. 8, lines 3-14), linear measurement toolkit (FIG. 24) and data visualization engine (col. 9, lines 34-46) of Biagotti. While the cited portions may disclose filtering or another step recited by claim 1, they fail to teach or suggest in combination the steps of carrying out a statistical analysis of noise within the read data to obtain at least one statistical moment or parameter related to the distribution of the noise, determining a threshold value from the statistical moment(s) or parameter(s), identifying peaks in the spectrum by comparing data points to the determined threshold, and storing information relating to the identified peaks together with the statistical moment(s) or parameter(s).

In sum, neither Gedcke nor Biagotti disclose the recited steps of carrying out a statistical analysis of noise within the read data to obtain at least one statistical moment or parameter related to the distribution of the noise, determining a threshold value from the statistical moment(s) or parameter(s), identifying peaks in the spectrum by comparing data points to the determined threshold, and storing information relating to the identified peaks together with the statistical moment(s) or parameter(s). Furthermore, there is no reason why one of ordinary skill in the art would modify the teachings of Gedcke or Biagotti to include this sequence of steps, particularly in view of the fact that Biagotti is not related to the problem of compressing and

filtering mass spectrometry data. Accordingly, the rejection of claim 1 under §103(a) is improper and should be withdrawn.

Independent claims 19 and 28 are believed to be patentable over Gedcke and Biagotti for at least the reasons advanced above in connection with claim 1. In particular, both claims 19 and 28 recite limitations of deriving at least one statistical moment/parameter representing noise in the spectral data, determining and applying a threshold based on the statistical moment(s) or parameter(s) to identify peaks, and storing the statistical moment(s)/parameter(s) with the peak information. As discussed above, Gedcke and Biagotti fail to teach or suggest the storage of the noise-related statistical moment(s)/parameter(s) with the peak information.

Finally, dependent claims 2-18 and 20-25 are submitted to be patentable over Gedcke and Biagotti at least by virtue of their dependency on allowable claims.

In view of the foregoing arguments, all of the pending claims in the Application are submitted to be allowable, and passage of the Application to issue is requested. The Examiner is invited to contact the Applicant's undersigned representative if it is believed that such action will be helpful to advance prosecution. The Commissioner is hereby authorized to charge any fees determined to be due in connection with this paper to Deposit Account 50-3267.

Respectfully submitted,

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